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ABSTRACT

Peer tutoring programs represent an innovative approach for optimally utilizing resources existing within classrooms. While most tutoring programs are aimed at helping tutees or tutors with academic difficulties, this study involved all children in two classrooms in a peer tutoring project. A multiple baseline design indicated that prompting was effective in establishing tutoring behaviors among the children. By the end of the program, children were using corrective feedback, re-presenting questions, and employing contingent praise. Positive findings were found in academic, behavioral, and consumer satisfaction indices. Also evaluated were two interventions directed at enhancing social skills in groups of first and third grade children. Triads were taught one of four social skills -- touching, asking questions, sharing or praising through a behavioral intervention consisting of instructions, modeling, behavioral rehearsal, feedback and reinforcement. While increases in social behaviors were noted, follow-up indicated substantial erosion in gains. In the ecological intervention, dramatic increases in sharing were noted for an isolate child after he was placed in a group whose members displayed high levels of sharing. Comparisons were made of the differential effectiveness of behavioral versus ecological approaches in establishing and maintaining behaviors. (Author)

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Evaluating a School Primary Prevention Program

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Evaluating a School Primary Prevention Program

Most early intervention programs have focused on remediating disorders or building social skills in school children identified as evidencing incipient problems. Unfortunately, labelling certain children as manifesting problems might contribute to self-fulfilling prophecies which have pernicious long-term effects, early problems might be better understood as a function of a child's social context, and many children might be inaccurately selected by screening instruments.

Rather than focusing on incipient disorders, primary preventive programs seek to prevent onset of specific target problems, insure that high-risk vulnerable populations or those about to experience potentially traumatic milestone events do not succumb to disorders, or build competencies and adaptive skills which might enable children to withstand stress and later life difficulties. The behavioral intervention described below illustrates the latter approach by fostering academic and interpersonal skills for all children within an inner city first and third grade classroom.

When adopting a behavioral conceptual framework, and a primary prevention time loci (Jason, 1977), four prospective approaches include: 1) classical conditioning strategies, 2) operant techniques, 3) cognitive restructuring or 4) modeling procedures. In the present study, operant and modeling techniques were used in establishing and strengthening teaching and interpersonal skills.

The majority of cross-age and peer-tutoring projects in schools have focused on either tutors or tutees with identified academic or social problems, or have focused on only a few target children in a classroom. In addition, most cross age and peer-tutoring projects have employed a

package of behavior techniques in order to instill teaching skills. It would be useful to document the differential effectiveness of disparate approaches in teaching tutoring skills.

The first of this two part study, investigated the establishment of peer-tutoring behaviors within an entire first and third grade classroom. Three teaching behaviors - use of corrective feedback, re-presenting the question, and administering contingent praise, were initially modelled to all children. Prompting (presenting a discriminative stimulus) was then employed with each of the three behaviors using multiple baseline design. The differential effectiveness of prompting and modeling was investigated in the establishment of basic tutoring skills. In-process behavioral recordings, pre-post academic measures, and consumer satisfaction questionnaires were utilized in evaluating program efficacy.

Study 1

Site and Subject characteristics:

The peer tutoring program was conducted in a first and third grade classroom of an inner-city parochial school in Chicago. The elementary school did not have access to either a school psychologist or a guidance counselor. The 18 children in the first grade ranged in age from 6 years 10 months to 8 years 1 month. The 19 third graders were between 8 years 9 months to 10 years 4 months. The first grade class consisted of seven boys and eleven girls; five Caucasions, three Blacks, and ten Latinos. In the third grade, there were seven boys and twelve girls; six Caucasions, five Blacks and eight Latinos.

Program

The children in each classroom were grouped into triads (there was one group of four in the third grade). In these groups, each child

alternatively assumed three roles, tutor, tutee and scorekeeper (in th group with four pupils, two children served as scorekeeper). Every five minutes, the children switched roles. In this way, each child had the opportunity to be a tutor, tutee and scorekeeper within each 15 minute tutoring session. The curriculum for the program consisted of arithmetic and spelling items presented in alternate tutoring sessions. The material which was placed on three by five inch file cards was obtained from lessons the teachers were currently working on in their classrooms. Following the structured peer tutoring program, children were given 10-15 minutes of free play in their groups.

Procedure

For each group of three children, there were two college student observers - one recorded tutoring interactions, the second gave directions and prompted behaviors. Prior to each actual session, the observers modeled tutoring behaviors. The model's script was: "We're going to play the teaching game. Watch how this is done. Pretend I'm the teacher and _____ (the other observer) is the student. I lift this card and say 'What is this'. (The second observer stated the answer). Then I say 'That's right'. Now if the student says the wrong answer, this is what I do: 'What is this' (The second observer stated an incorrect answer). 'This is a _____. What is it?' (The second observer stated the correct answer). 'Right'.

On the first day, the scorekeeping system was explained. The children were shown a Child Recording Form. The observer then said "There are 30 spaces for answers on this form (the observer then pointed to the thirty lines on the form). If the correct answer is given, write a plus on the first line. 'O.K. Watch. What is this?' (The other observer says the right answer). 'Right.' So I put a plus here. Now if the wrong answer is given, write a dash. Watch this: 'What is this?' (The wrong answer is given). 'This is a

_____. What is this? (Correct answer is given). 'Great.' Now I put a dash here because the wrong answer was given first."

The observer then said "Now we are ready to start." Pointing to the pupils, the observer continued "You will be the teacher, you will be the student, and you will be the scorekeeper." Before handing the 30 cards to the tutor, the observer said "Be sure to hold the cards between your hands like this. After the student says the correct answer, put the card neatly on the table like this." This instruction was used the first day and at other times if a child was sloppy in managing the cards while tutoring.

At the completion of the teaching game, the observer praised each child for their good conduct and number of correct responses. Children were then given happygrams with the number of correct responses inserted on the picture. If a child was disruptive during the session the happygram would not be given to the child. When the class as a whole reached 90% accuracy on a specific arithmetic or spelling curriculum, the next unit was begun.

Prompting

Prompting by the observer was first directed towards increasing corrective feedback, then re-presenting the question, and finally use of contingent praise. Prompting consisted of first using a general prompt, and a second specific one if needed. As an example of prompts for corrective feedback, if the tutor said "What is this?" and an incorrect or no response was offered by the tutee,, the observer would wait five seconds for the tutor to initiate corrective feedback. If feedback was not offered, the observer initiated a general prompt stating: "What are you supposed to say?" If the tutor still did not give the correct response, the observer then specifically said "Tell the student this is a _____." If the tutor did not know the corrective response, and asked the observer for the answer, then used corrective feedback, this interaction was scored as

adequate use of corrective feedback.

After corrective feedback was firmly established, the second tutoring behavior (re-presenting the question) was prompted. For example, following an incorrect response, the tutor might have given the corrective feedback, but failed to re-present the question. If this occurred, the observer prompted by saying "What are you supposed to say?" If no tutor response followed, the observer then said "Ask the student 'What is this'".

After this second tutoring behavior was being emitted at high levels, the use of praise was prompted. After a correct answer was emitted (after the question was initially asked or after the question had been re-presented), the observer waited up to five seconds for the child tutor to use contingent praise. If if was not offered, the oberserver said "What are you supposed to say?" If praise was not used, the observer said "Tell the student that was right."

Dependent Measures

Continuous in-process tutoring interaction and classroom behavioral measures were gathered. In addition, changes in the children's grades were monitored. Consumer satisfaction ratings by the teachers and students were also obtained.

Interactions

On the Observer Recording Form, there were 30 lines, each referring to one item presented to the tutee. There were seven behavior categories on the form, the first three referred to the tutor's behavior, the second two referred to the tutee's behavior, and the last two referred to the tutor's behavior. The first category referred to the tutor's initial presentation of the question "What is this?" The second category specified corrective feedback, the tutor's provision of the correct answer following a tutee's incorrect response. The third category referred to re-presenting the question following an incorrect tutee answer and the tutor's provision of the correct answer. The

next two columns referred to trial 1 and trial 2 tutee responses to the question. The last two columns referred to the tutor's use of praise, on trial 1 or on trial 2 (trial 2 would refer to praise after the tutee correctly responded to the re-presentation of the question, following an incorrect initial answer). Praise was defined as a positive verbal statement (e.g., "That's good", "Right", "Terrific", "That's correct") following a correct tutee's response.

Two separate coding systems were used for the possible tutor and tutee behaviors. A tutee's response to the curricula on trial 1 and/or trial 2 were coded as a check, if a correct answer was given, a dash if an incorrect answer was given, and left blank if the tutee did not respond. For each of the five tutor behaviors, a check was noted if the tutor initiated the specified behavior spontaneously, a slash was placed through the check if the observer initiated a prompt for the behavior, and a circle surrounded a check if the child tutor asked the observer for the correct answer. If the tutee child correctly answered an item on the first trial, the space in the second trial would be left blank.

Each day, the pair of observers jointly recorded observations for one child in order to obtain a reliability estimate for the scoring system. To control for consensual drift, the second observers were regularly shifted to different groups of children.

Classroom Behavior Observations

Children's classroom behavior was recorded on Mondays and Wednesdays to assess possible second order effects (the peer tutoring project occurred on Tuesdays and Thursdays). The observational system monitored appropriate and inappropriate behaviors based on the definitions of Madsen, Becker, and Thomas (1968). Appropriate behaviors referred to time on task, whereas inappropriate behaviors included gross motor activity (e.g., getting out of

the seat), noise, disturbance of other's property, physical contact, non-permitted verbalization, turning around, and other inappropriate actions (e.g., ignoring teacher's questions). The observations were based on a momentary time sampling system (Powell, Martindale, Kulp, Martindale, & Bauman, 1977). The observer looked at the first child on the list, then scored the child's behavior as appropriate (✓) or inappropriate (-), during the next four seconds. The next child on the list would then be observed and the behavior recorded. Each child was observed a total of 20 times, the observation sessions lasting approximately 30 minutes. The observer was not aware of the purpose for observing, and had no knowledge of the peer tutoring project. On several occasions, a second observer simultaneously recorded these classroom behaviors. Five baseline observations occurred prior to intervention start.

Grades

Children's grades in arithmetic, spelling, writing, and conduct were assessed before and after the peer tutoring project. Grades were coded as 3 (very good), 2 (good), and 1 (needs improvement).

Consumer Satisfaction

A six item satisfaction questionnaire was completed by the teachers at program end. Many of the items were taken from a scale developed by Kent and O'Leary (1976). Questions had 5-point scales, with higher numbers indicating greater satisfaction. The teachers also rated their feeling toward the college students who worked with their children, and made an overall evaluation of the project.

The children were also given an opportunity to indicate whether they liked or disliked the teaching game. They were also asked whether they had used the game during nonproject times, and in which settings.

Results

Reliability

Tutoring interactions. Agreement in the Observer Recording Form was conservatively defined as concordant ratings on an entire line of behavior. In other words, for agreement to be present, both observers had to have identical rating in all the following seven categories: tutor asking the question, giving corrective feedback, re-presenting the question, trial 1 and 2 tutee answer, and trial 1 and 2 tutor use of contingent praise. The average agreement, calculated by $\frac{A}{A + D}$, over 158 separate reliability sessions was 81%.

Classroom Behaviors

A second observer simultaneously recorded classroom behavior five times during the tutoring program. Interrater reliability (calculated by $\frac{A}{A + D}$) averaged 87%.

Tutor Behaviors

Figures 1 and 2 present the percent of three tutoring behaviors for

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Insert Figures 1 and 2 about here

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the first and third graders over time. In the first grade, use of corrective feedback increased from 32% during baseline to an average of 71% during prompting. In the third grade, corrective feedback increased from 45% to 76%. These data could not be subjected to statistical analysis due to the one baseline session.

With implementation of prompting, dramatic level shifts were noted for re-presenting the question and using praise for both classrooms. In the first grade, re-presenting the question increased from 17% to 76%, in the third grade from 28% to 87%. Using time series analysis (Glass, Willson & Gottman,

1975), level changes from baseline to intervention were significant ($t(22) = 6.25$, $p < .01$; $t(23) = 6.57$, $p < .01$). Use of praise increased from 5% to 71% in the first grade, and from 22% to 86% in the third grade. Level praise changes from baseline to intervention were also significant ($t(22) = 6.33$, $p < .01$; $t(23) = 6.16$, $p < .01$).

In regard to the accuracy of the child scorekeeper, the first grade averaged 83% correct and the third 91%. No feedback was ever given to children regarding the accuracy of their scorekeeping.

Classroom Behaviors

With implementation of the peer tutoring project, children's appropriate behavior increased in both the first and third grade. In the first grade, there was an average 16% increase (from 60% to 76%), and in the third grade, an average 15% increase (from 69% to 84%). Few baseline sessions precluded statistical analysis.

Grades

T-tests for nonindependent samples were computed for the first and third grade classrooms. In the first grade, significant positive changes were noted in reading ($t(18) = 2.92$, $p < .05$) and arithmetic ($t(18) = 3.29$, $p < .01$) grades. In the third grade, significant positive pre-post changes were noted in reading ($t(19) = 2.36$, $p < .05$), arithmetic ($t(19) = 1.84$, $p < .05$) and conduct ($t(19) = 2.88$, $p < .01$). Although improvements were noted in writing, the changes were not significant. Significant gains were made in those areas where peer tutoring occurred. In the first grade, five spelling and six math units were completed; in the third grade, six spelling and seven math units were finished.

Consumer Satisfaction

On the Consumer Satisfaction questionnaire, on five point scales, both teachers gave the highest ratings (5) to the following questions: the goals

of the program, teaching tutoring and academic skills, had been successfully achieved; the procedures used were very helpful; the program should be continued in the future; and participation in the program would definitely be recommended to other teachers. Undergraduates were rated as likeable, committed, competent, and concerned with their problems.

All the first graders indicated they liked the tutoring game and all but one of the third graders also liked the game. Reasons given included: liking the scorekeeper role, liking the tutoring role, enjoying the use of praise, being able to learn the material better, and feeling the game was fun. Fifty percent of children in each class indicated they used the game at nonproject times. In the first grade, this occurred at home with siblings or at school with the teacher. Among third graders, this occurred at home with siblings, parents, friends or other relatives. As we left the third grade classroom for the last time, one child commented "Now that you won't be coming here anymore, we're going to have to do work during this time."

Discussion

The study's major contribution was demonstrating the establishment of tutoring behaviors in two elementray school classes. When prompting by college students was introduced, at separate time points, two distinct tutoring behaviors (the third behavior, correct feedback, will be discussed below) evidenced level increases over the baseline phase. The use of a multiple baseline design aided in the identification of prompting as the critical intervention ingredient. The study therefore indicates that with proper supervision, children within first and third grades can learn to employ tutoring behaviors in a peer-tutoring project.

Positive findings were also noted on classroom behavior observations, grades and consumer satisfaction ratings. Appropriate behaviors might have

increased either as a function of the tutoring program or irrelevant historical time factors. Introducing a peer tutoring program to different classes at different times, using a multiple baseline design, would help to identify whether second order effects such as improved classroom behavior can be attributed to the tutoring. Grades significantly imporved in the two curriculum areas in which tutoring occurred. It should be noted that the teachers dispensed grades, and might have inflated post-program grades because of an expectation that the children should do better in the tutored areas. Assessment of academic abilities by unbiased testers using standardized achievement tests would eliminate potential teacher bias confounds. The extremely positive teacher and child consumer satisfaction ratings are important social validation measures (Kazdin, 1977). At program end, both teachers told the first author that they particularly liked the project because all children received services as opposed to two or three problem children. These comments indicate that some primary preventive programs might be even more attractive than early secondary preventive interventions. The finding that 50% of program children used tutoring skills during non-project times suggest that skills generalized to other behavior settings. Confirmation of such reports by contacting parents and children's friends would have strengthened the reliability of the children's statements.

Two ancillary findings indicated that third graders displayed higher levels of tutoring skills than first graders, and that prompting was more effective than modeling in establishing tutoring behaviors. The fact that older children (third graders) displayed higher levels of tutoring skills when exposed to modeling (during baseline) and prompting (during the intervention) is not surprising. Older children tended to attend better to directions, comply more with instructions, and obtain more gratification from successfully mastering the teaching game (these are merely impressionistic

observations of the authors which need to be confirmed by future empirical data). Prompting was more effective than modeling in instilling at least two teaching behaviors, re-presenting questions and use of praise. There are two possible reasons explaining the lack of a robust effect for modelling: a) the task was too difficult for the children to adequately imitate or b) merely observing a model perform an action does not provide the requisite incentive to engage in the behavior. Prompting, on the other hand, carefully specified the behavior to be performed and provided a discriminative stimulus for engaging in the behavior.

Conclusive statements can not be made about the differential effects of modeling and prompting in enhancing the children's use of corrective feedback. Had stability in more baseline sessions been obtained, and level or trend changes during an intervention been noted, the effectiveness of prompting would have been demonstrated. The original intervention design had specified more baseline sessions before implementing prompting. The teachers, however, strongly felt that incorrect responses had to be corrected during the teaching game. At this point, two options were available to comply with the wishes of the teachers: a) to begin prompting, or b) to have the undergraduates provide the corrective feedback. Since the objective in the peer-tutoring project was to have the children develop such behaviors, the first option was reluctantly selected.

During the prompting phase, each of the tutoring behaviors was performed from 70-90% of the time without prompting. After the three teaching behaviors had been established, it would have been of interest to withdraw prompting to see whether tutoring behaviors decreased. The tutoring behaviors were somewhat unstable, with corrective feedback evidencing the most variability. When tutors did not know the answer for an item, they frequently waited for the answer to be given to them (necessitating a prompt), as

opposed to asking the undergraduate for the answer. Future studies might be directed towards establishing the skill of asking for the answer when an incorrect tutee response is given and the tutor does not know the answer.

Although the present study adds to a growing literature indicating the viability of child tutoring programs, a need still exists to develop tutoring programs which are both economical and effective. Unfortunately, the present study used an excessive amount of person-power (two undergraduates for every three children) and failed to compare treatment with control classes. Next year's intervention in the school system will focus on establishing prompting behaviors in seventh and eighth graders, who will then supervise first and third graders. In addition, changes in control classes over time will be monitored. The long-term goal of the peer-tutoring project is to demonstrate its effectiveness in establishing tutoring behaviors and in enhancing academic and social skills. Ultimately, this primary preventive program will be fully implemented by personnel within the school system.

Study 2

Many social behaviors in children have been established and accelerated through the use of various behavioral techniques (e.g., teacher attention, prompting, reinforcement, modeling, etc.). In contrast, an ecological intervention would focus on indirectly altering interactions through changing inanimate environmental components, such as physical design (seating patterns, architectural arrangements), resources (curriculum, play materials), and ambient conditions (illumination, noise, temperature), or changing the characteristics of individuals inhabiting settings. As an example of this latter approach, engineering increased social behaviors in a setting might be accomplished by first identifying children evidencing low rates of social

behaviors, and exposing them to children displaying interactional patterns illustrating the specified desired changes.

The present study evaluated the efficacy of behavioral training (instructions, modeling, behavioral rehearsal, feedback and reinforcement) in enhancing four social behaviors (contact, asking questions, sharing, and praising). This approach was compared with an ecological intervention, whereby a child with low rates of sharing was placed in a group evidencing high rates of sharing. The effectiveness, efficiency and appropriativeness of each approach in enhancing social behaviors was investigated.

Method

The intervention focused on establishing social skills during the second 15 minute unstructured period. During this latter period, children could draw pictures with crayons, interact with other children in their group, converse with an adult supervisor, etc. Two university students were assigned to each triad, one observed interactions, the other interacted with the children. Establishment of social skills occurred after all children were displaying criterion rates of tutoring behaviors.

Dependent Measures

Children were observed for fifteen minutes twice weekly during the unstructured period. The four social behaviors observed are defined below:

Positive physical contact (C)	A child extending a hand or arm toward a peer and patting, rubbing, hugging, stroking, or grasping in positive fashion.
Questions (Q)	A child asking a peer a question.
Sharing (S)	A child offering or giving an object or material to a peer or their concurrent use of an object or material with a peer.
Complimentary verbal statement (V) (praise)	A child speaking to a peer in such a manner as to compliment, praise, or express warm feelings.

The three children were observed for 10 seconds, then observed social behaviors were recorded for each child during the next 5 seconds. Using this format, children were observed on 20 trials during each observation session. Percent of social behaviors displayed for each child was obtained by multiplying occurrences of each behavior by five. Reliability estimates were obtained for each triad during each of the experimental phases, described below.

Behavioral intervention

After tutoring behaviors had been established in children, there were four baseline sessions for four groups of triads in both the first and third grade classrooms. (Two groups of third graders were eliminated due to either too many or too few children in a group). Following collection of baseline data, each triad in the two grades was randomly assigned to one of four interventions which was directed towards enhancing either contact, questions sharing or praise. Intervention components included instructions, modeling behavioral rehearsal, praise and feedback. For example, sharing was increased by first telling the children to try to increase the amount of sharing (instructions), demonstrating the sharing of play material (modeling), giving children the opportunity to share (behavioral rehearsal), praising occurrences of sharing (praise), and informing children at session end of the amount of sharing each child had engaged in (the university student interacting with the children recorded each occurrence of sharing). At the completion of the intervention, data was collected during four follow-up sessions. For some triads, fewer than four sessions per phase were obtained due to child absences.

Ecological intervention

Two groups of children in the first grade were not involved in the behavioral intervention. In one group, high rates of sharing occurred during the baseline phase. For this group, the baseline sessions were extended to

eight sessions. A child in another group did not display any sharing behaviors. During sessions 9-11, the child with low rates of sharing was placed in the group evidencing high rates of sharing.

Results

Reliability

On 27 separate occasions, two observers recorded the four social behaviors. Agreement was defined as the two observers agreeing on the occurrence or non-occurrence of all four social behaviors. The average interrater reliability, calculated by dividing the number of agreements by agreements plus disagreements, was 84%.

Behavioral intervention

Figure 3 presents social skills data for triads in the first and third

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Insert Figure 3 about here

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grades. During the baseline phase, no occurrence of contact was observed in either first or third grade children. After implementation of the intervention, contact averaged 57% in the first graders and 44% in the third graders. At follow up, contact declined to an average of 3% and 5% for the first and third graders, respectively.

Baseline estimates for the second baseline behavior, questions, were low in the first and third grade groups, averaging 5% and 1%, respectively. Questions increased to 26% in the first grade and 21% in the third grade during the intervention. In the follow up phase, questions decreased to 9% and 6% in the first and third graders.

The next social behavior, sharing, occurred an average of 1% in the first and third grade groups during baseline. During intervention, initially large increases were noted, however, decreasing trends were noted in each

classroom. Follow up scores averaged 4% and 5% in the first and third graders.

The last behavior, praise, averaged 1% in the first grade and 0% in the third grade during baseline. With implementation of treatment, praise increased to an average of 7% and 52% in the first and third graders, respectively. During follow up, praise did not occur in the first grade group, and averaged 8% in the third graders.

Ecological intervention

Figure 4 presents data from the ecological intervention in the first

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Insert Figure 4 about here

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grade. During the eight baseline sessions, unstable rates of sharing occurred in the group evidencing high rates of sharing (sharing averaged 14%). No instances of sharing were observed during baseline for the target child. When the child was placed in the high sharing group, his rates of sharing averaged 38%, whereas sharing among other group members averaged 42%.

Discussion

The second study's principal finding was that social skills in elementary school children could be enhanced by employing a package of behavioral techniques, however, gains were not maintained after intervention end. Several investigators (Barton & Osborne, 1978; Cooke & Apolloni, 1976) have indicated that social skills could be maintained when treatments were more intensive or prolonged than in the present study. Even is such skills can be maintained, behavioral investigators focusing on changing children's behavior need to assess whether requisite professional supervisors are available to establish target behaviors, the practicality of implementing such interventions on a

larger scale, and the cost-effectiveness of such approaches.

The erosion of gains during follow up reflected a withdrawal of supervisory control over stimulus conditions, i.e., target behaviors were no longer prompted, modelled, etc. In the first study, prompting successfully provided children careful specification of behaviors to be performed; had prompting been discontinued, teaching behaviors might have also eroded. Maintenance of gains could be realized if economical supports (e.g., seventh or eighth graders) continued to prompt target behaviors, or the inanimate environment or characteristics of member inhabitants were altered to provide a continuous source of stimulus control over the desired behaviors.

Holland (1978) has posited alternative approaches for bringing about behavioral changes. He has argued that we need to change societal contingencies which produce deviant behaviors, rather than focusing exclusively on the target behaviors. The ecological intervention encompassed this environmental approach. A behavior setting with high rates of positive behaviors was systematically identified, and an isolate child was introduced to this setting. The benefits accrued were immediate; the child's rates of sharing increased when participating in the behavior setting identified as a prospective facilator of sharing behaviors. More than likely, the children modeled sharing behaviors, and offered the formerly isolate child opportunities to share materials and resources. This finding suggests that intervenors might devote more efforts to analyzing, harnassing and utilizing existing competencies and strengths extant within settings. Such efforts would be predicated on the assumption that salutary behaviors and interactions, exist within behavior settings. A limitation in the present study was that high rates of contact, praise and question asking were not documented during baseline sessions.

The second study should be interpreted with caution due to several

methodological limitations, including: a) small number of data points per phase, b) unstable baselines and c) declining slopes during several interventions. In addition, the findings of the ecological approach would have been more impressive if more groups of children and social behaviors had been involved and a more rigorous experimental design had been employed.

Environmental investigators might profit from devoting more time to studying inanimate stimulus properties of settings. For example, seating arrangements, design and size of settings, resources within settings, and ambient conditions are all environmental properties which if altered would change stimulus qualities of settings and prospectively engender long-term influences on behavior. Properties of both the inanimate environment and its inhabitants facilitate the display of certain behaviors and moderate the probability of others. As an alternative to intervening on extant environment-person interactions (as typifies most behavioral interventions), analysis and utilization of existing patterns might result in more economical long-term gains. In the future, psychologists might more often serve as matchmakers, identifying those individuals in need of behavioral change, and linking them up with networks of settings, analyzed previously as facilitating specified desired changes.

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Figure Caption

Figure 1. Percent of unprompted feedback, re-presenting questions, and use of praise in the first grade

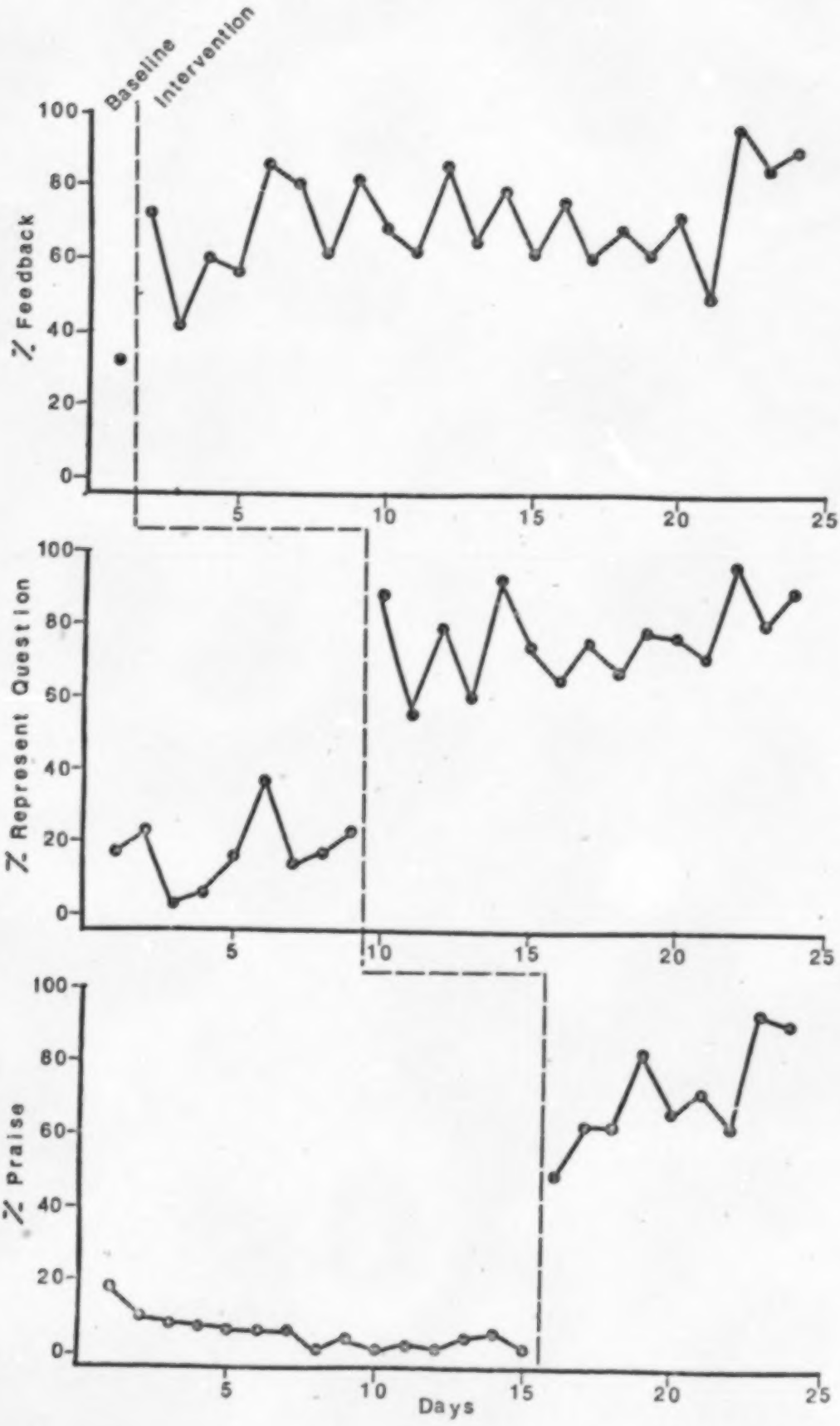

Baseline
Intervention
% Feedback
% Represent Question
% Praise
100
80
60
40
20
0
5
10
15
20
25
Days

Figure Caption

Figure 2. Percent of unprompted feedback, re-presenting questions, and use of praise in the third grade

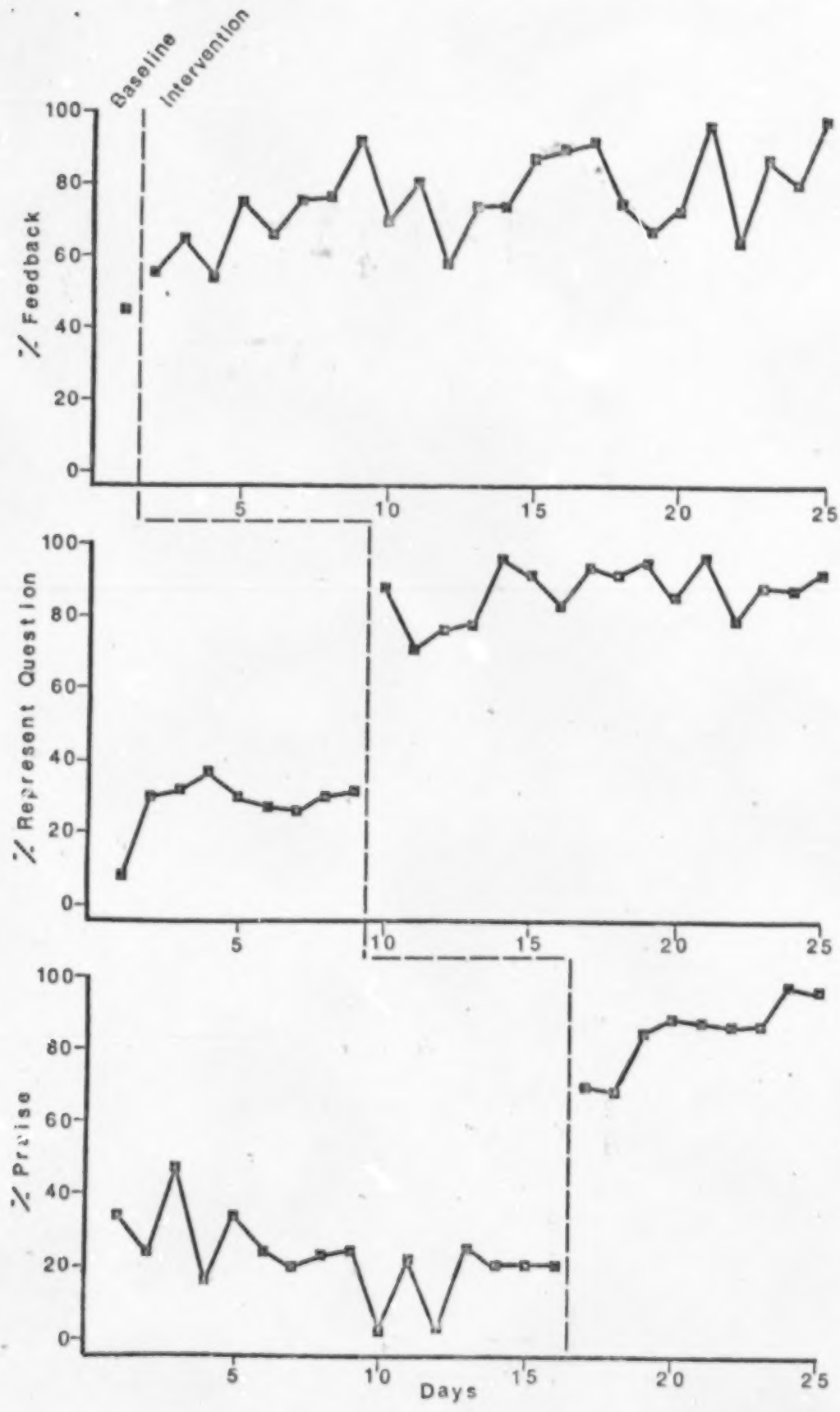

Baseline
Intervention
% Feedback
% Represent Question
% Praise
100
80
60
40
20
0
5
10
15
20
25
Days

Figure Caption

Figure 3. Percent of social behaviors for first and third graders.

third grade groups

first grade groups

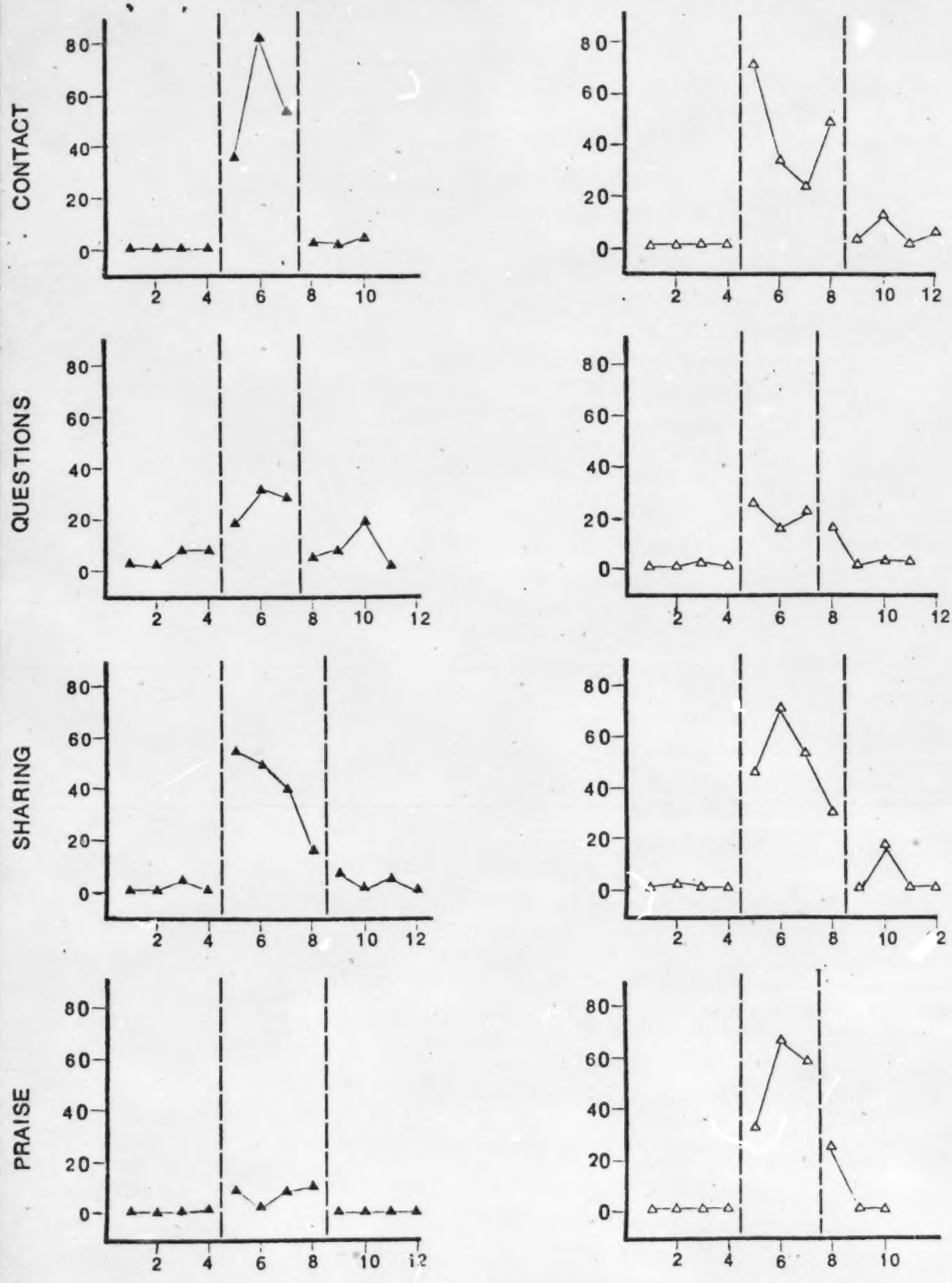
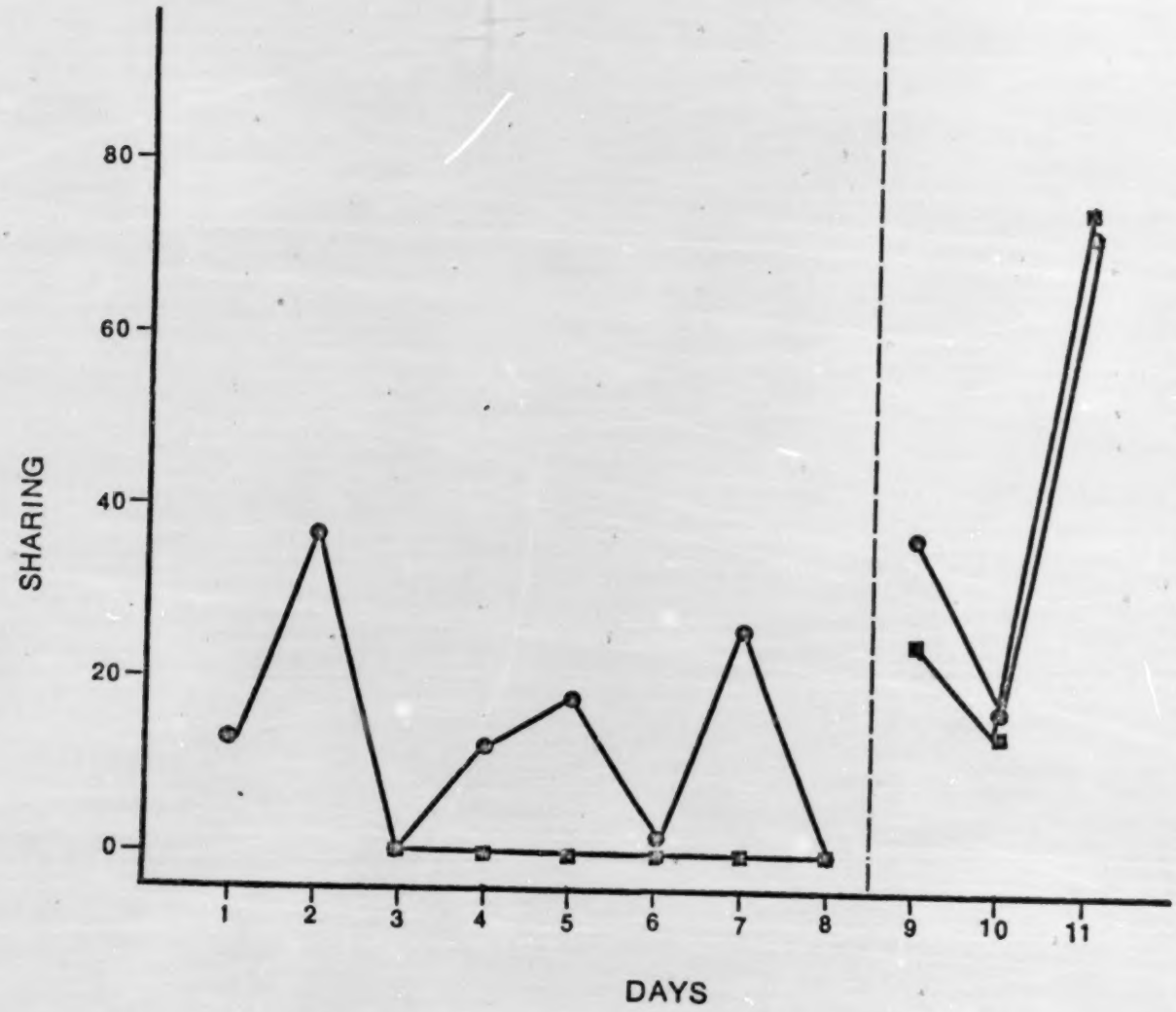

CONTACT
QUESTIONS
SHARING
PRAISE
0
20
40
60
80
2
4
6
8
10
12

Figure Caption

Figure 4. Percent of sharing in the ecological intervention.

original three children

transferred child


SHARING
80
60
40
20
0
1
2
3
4
5
6
7
8
9
10
11
DAYS